

A REVISION OF THE STATUS OF CYPRAEA OSTERGAARDI DALL

by

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(Plate 15)

Among the many significant discoveries made by the Hawaiian Pele Expedition of 1959, one of the most interesting is the taking of the second live specimen of Cypraea ostergaardi Dall. Finding this specimen has served to clarify the status of two separately described species, C. ostergaardi and C. alleni Ostergaard. It is the considered opinion of the authors that these two species are synonymous, C. alleni representing the live specimens, and C. ostergaardi as formerly known, representing a subfossil shell of identical characteristics.

A brief history of these shells discloses that the first specimen was brought up in the dredging of Honolulu Harbor in 1915. Ostergaard recognized it as distinctly different from a large group of subfossil Cypraea helvola brought up at the same time, and in 1920 described it as Cypraea pacifica. Five specimens were taken at that time, all dead. The type specimen is in Prof. Ostergaard's collection.

In 1921, Dall pointed out that the name Cypraea pacifica had been preoccupied by a species of Trivia described by Gray in 1832. He therefore renamed the species Cypraea ostergaardi in honor of the original author.

In 1949 Charles A. Allen of Honolulu, in his extensive dredgings in the Hawaiian area, brought up a shell that appeared to be an entirely new species. Dredged in approximately 80 feet of water off the island of

Kauai, this unique specimen was described by Ostergaard in 1950 as Cypraea alleni.

During August, 1959, five dead specimens of Cypraea ostergaardi were dredged by the Pele Expedition; one was taken in 90 feet of water off Diamond Head, Oahu; the other four were dredged in from 50 to 75 fathoms on a coral-rubble and sand bottom off Keehi Lagoon, Oahu. These shells are identical in form and color to the pellucid specimens found in the early Honolulu Harbor dredgings from which the original C. ostergaardi was described.

On September 22, 1959, during the final week of the Pele Expedition, a live specimen exactly matching all the features of the holotype of Cypraea alleni was brought up in the dredge from 60 fathoms on a coral-rubble bottom in Keehi Lagoon, Oahu--the same locality where four of the five pellucid specimens of C. ostergaardi were found during the previous month. This specimen was sent to the senior author for study; at the same time, three specimens of the pellucid C. ostergaardi were on hand for the same purpose. When all four of these shells were lined up together it was obvious they were one and the same species, varying from one another in no respect except color and markings. This substantiates Ostergaard's observation in his publication (1958) of the species C. alleni, as follows: "This species is probably most closely related to C. ostergaardi Dall which it resem-

bles, in form, teeth, and aperture, but departs radically from it in its markings."

Professor Ostergaard has examined this group of four shells (the same group figured in Plate 15), and agrees that they are all identical structurally. All who have seen the four shells in question agree that the only difference between them lies in the color and markings. The question here now resolves itself as to whether color and markings alone are a valid basis for the separation of two otherwise identical species.

We propose that the two species be placed in synonymy, with the two known living specimens of the former Cypraea alleni being the true living C. ostergaardi, the pellucid specimens representing the fossil form. We base this proposal upon the following reasons:

1. The species heretofore known as Cypraea ostergaardi has never been taken alive.
2. Examination of all the pellucid forms reveals minute deposits of lime in the interior of the shells, as well as in the canals and the interstices between the teeth. This tends to substantiate the aging of these shells.
3. All of the recently dredged specimens of both types, living and pellucid, with one exception, were taken at the same depth and same locality, but in different dredge hauls and on different days. This seems to establish that both types share the same habitat.
4. Except for the rich rose-brown color on the dorsum of the new live specimen, and the accompanying tiny white spots which represent the final stage in color-development of the mature shell (and possibly the first stage to disappear in the process of becoming a fossil), all other color features are identical in all the specimens.

5. Despite every precaution to keep the live shell away from strong light during the five weeks that it has been under observation on the mainland, the dorsal color has perceptibly faded to the point that it now more closely resembles the pellucid form than when first received. This tendency to fade very rapidly after the death of the mollusk is typical of many species of Cypraea (for example, C. sulcidentata, C. leviathan, C. helvola, etc.) and emphasizes the importance of considering the color change as affecting the final analysis of a species.
6. It is the opinion of the authors that color and pattern alone cannot constitute the basis for a new species.

Therefore, from the foregoing conclusions, and from additional observations made from the newly dredged live shell, we offer the following emended description of Cypraea ostergaardi Dall:

Shell solid, bluntly ovate, somewhat flattened though humped posteriorly; margins thickened, pitted above though partially obscured by an overlapping callus at the sides. The pits are most prominent over the terminal collars, with the brown spots likewise concentrating here to suggest a continuous brown arc of shading. Teeth fine, well defined, extending narrowly the length of columella and labial margin; terminal ridge strong and oblique; columella broad, flat, becoming concave at the fossula; the last five columellar teeth extend in a broken line over the fossula. Aperture narrow, curved, constricted anteriorly. Dorsum a rich rose-brown with a faint lavender tinge, generously covered with dark brown spots; a final irregular covering of very fine white spots creates ocellae on many of the larger uppermost brown spots. The



Figure 1a



Figure 2a

Figure 2b

Figure 2c

Figure 2d



Figure 3a

Figure 3b

Figure 3c

Figure 3d

Cypraea ostergaardi DALL

Figures 1a, 2a, & 3a: Live Collected Shell. Figures 2b, 2c, 2d, 3b, 3c, & 3d: Subfossil Shell.

Figure 1a: Side View. Figures 2a, 2b, 2c, & 2d: Dorsal View. Figures 3a, 3b, 3c, & 3d: Basal View.

MEASUREMENTS: Shell a - Length 17.4 mm, Width 12.8 mm, Height 8.9 mm;
 Shell b - Length 19.9 mm, Width 13.9 mm, Height 5.7 mm;
 Shell c - Length 19.8 mm, Width 14.0 mm, Height 5.3 mm;
 Shell d - Length 20.6 mm, Width 15.9 mm, Height 10.5 mm.